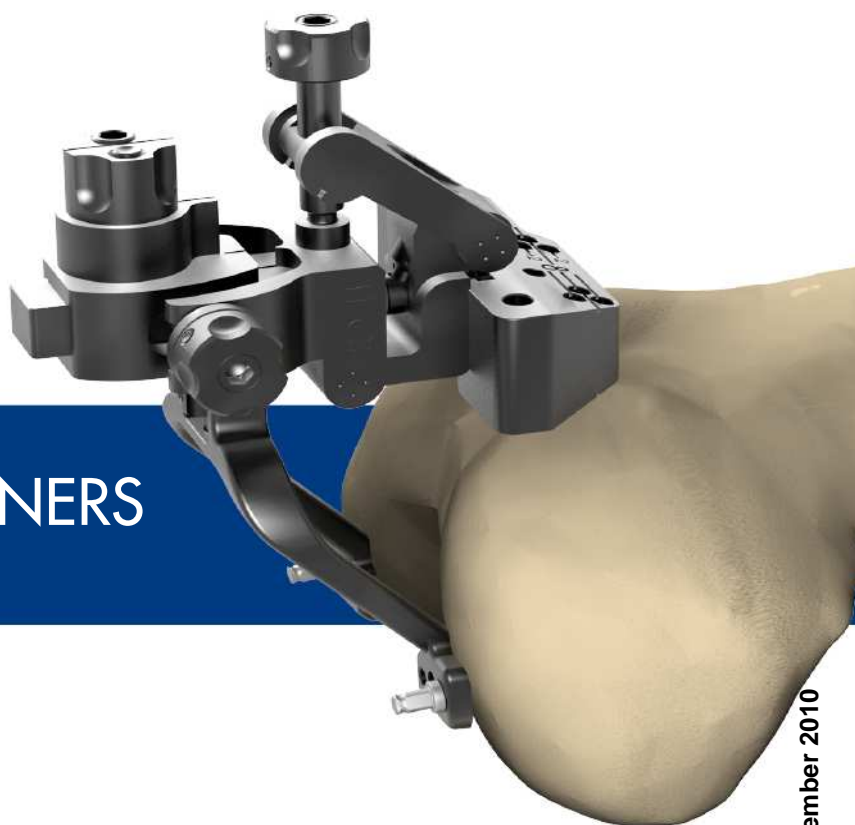


# MICROMETRIC POSITIONERS



## USER MANUAL

**CAUTION:** Federal law (USA) restricts this device to sale by or on the order of physician.

Distributed by MEDACTA USA, Inc, 4725 Calle Quetzal Unit B Camarillo, CA 93012 **1 (800) 901-7836.**

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## SYMBOLS

Throughout this manual you will find the following symbol:

**MSS**

The descriptions in the “MSS” boxes refer to instruments suitable for muscle sparing approaches.



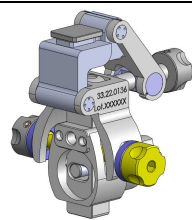
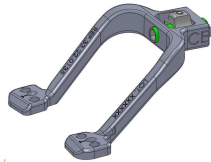
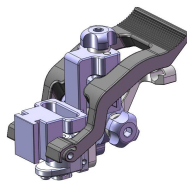
This manual applies to the following software versions: GMK v. 4.2.2, GMK v. 4.3.0, Evolis Global v. 4.3.0. For different applications please contact Medacta International.

## 1. INSTRUMENT DESCRIPTION

The micrometric positioners are used to place the GMK cutting guides on the tibia and on the femur, allowing a fine tuning of the cut parameters under computer assistance by turning specific knobs.

The micrometric positioners are meant to be used in combination with the iMNS Medacta Navigation System.

The following table summarizes the commercial codes for micrometric positioners.

Ref. No.	Description	Picture	Q.ty	Materials
33.22.0136	DT – Micrometric Positioner		1	AISI 316L AISI 420B AISI630 PROPILUX TEFLON
33.22.0135	DT – Micrometric Support		1	AISI 316L AISI 420B
33.22.0137	4 in 1 Micrometric Positioner		1	AISI 316L AISI 420B AISI630 PROPILUX Ti6Al4V

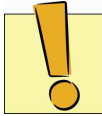
## 2. MICROMETRICS VS CUTTING GUIDES COMPATIBILITY

CUTTING GUIDES		MICROMETRICS	
		33.22.0136*	33.22.0137
TIBIA	02.07.10.2145/6	No	
	02.07.10.0111/3	Yes	
	2.622	No	
	02.07.10.0290/1	Yes	
DISTAL FEMUR	2.623	Yes	
	02.07.10.0127	Yes	
	2.618	Yes	
	02.07.10.0065	No	
FEMUR 4IN1	02.07.10.2101-6		No
	2.631-6		No
	02.07.10.0201-6		Yes

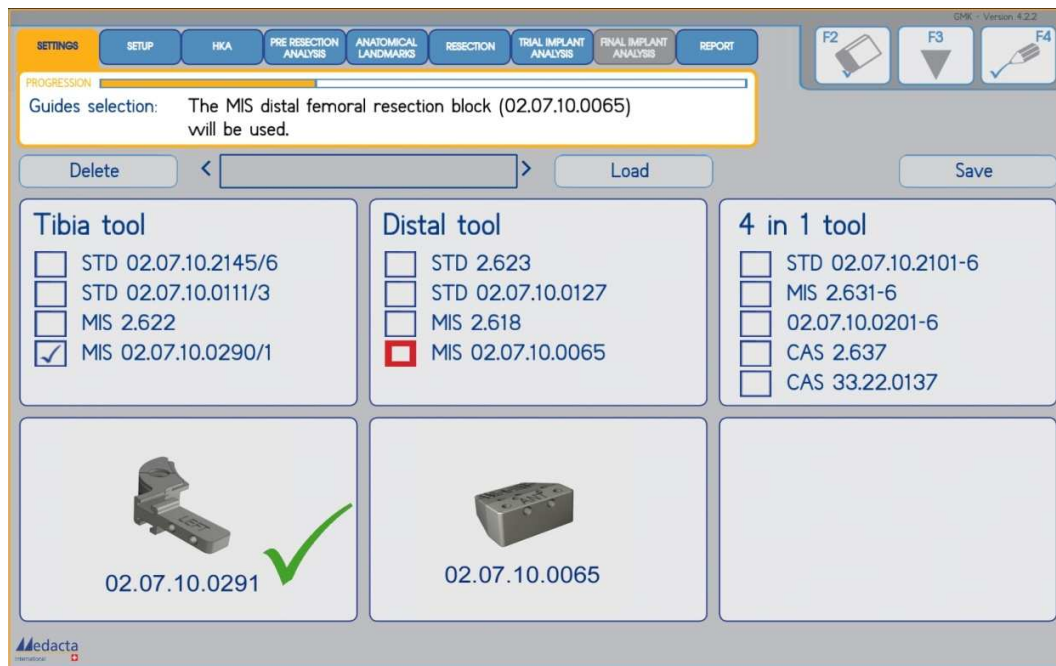
\*To be used in combination with 33.22.0135

 Not applicable

### 3. CUTTING GUIDES SELECTION



Please check the compatibility with the micrometric positioners before selecting each cutting guide.



To navigate the GMK cutting guides by using the micrometric positioners:

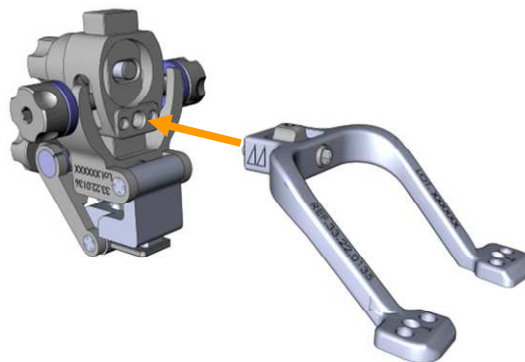
- in the "Tibia Tool" section, select (F3) and confirm (F4) the tibial cutting guide to be navigated
- in the "Distal Tool" section, select (F3) and confirm (F4) the distal cutting guide to be navigated
- in the "4in1 Tool" section, select (F3) and confirm (F4) the option CAS 33.22.0137.

#### 4. ASSEMBLING THE MICROMETRIC GUIDE ON THE SUPPORT

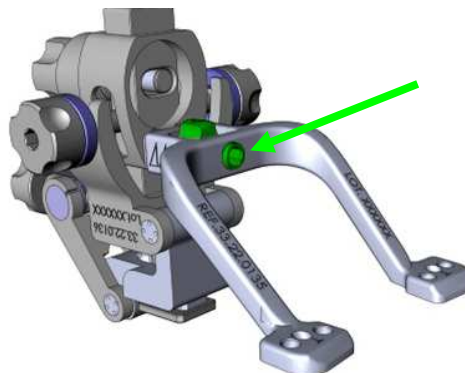
The DT - micrometric support is used to fix the DT - micrometric positioner on the tibia and on the femur. The following components must be assembled:

- DT - Micrometric Positioner (Ref.no. 33.22.0136)
- DT - Micrometric Support (Ref.no. 33.22.0135).

Screw the micrometric support on the 3-hole socket located on the micrometric positioner:



Secure the assembly by locking the knob highlighted in green in the picture below:

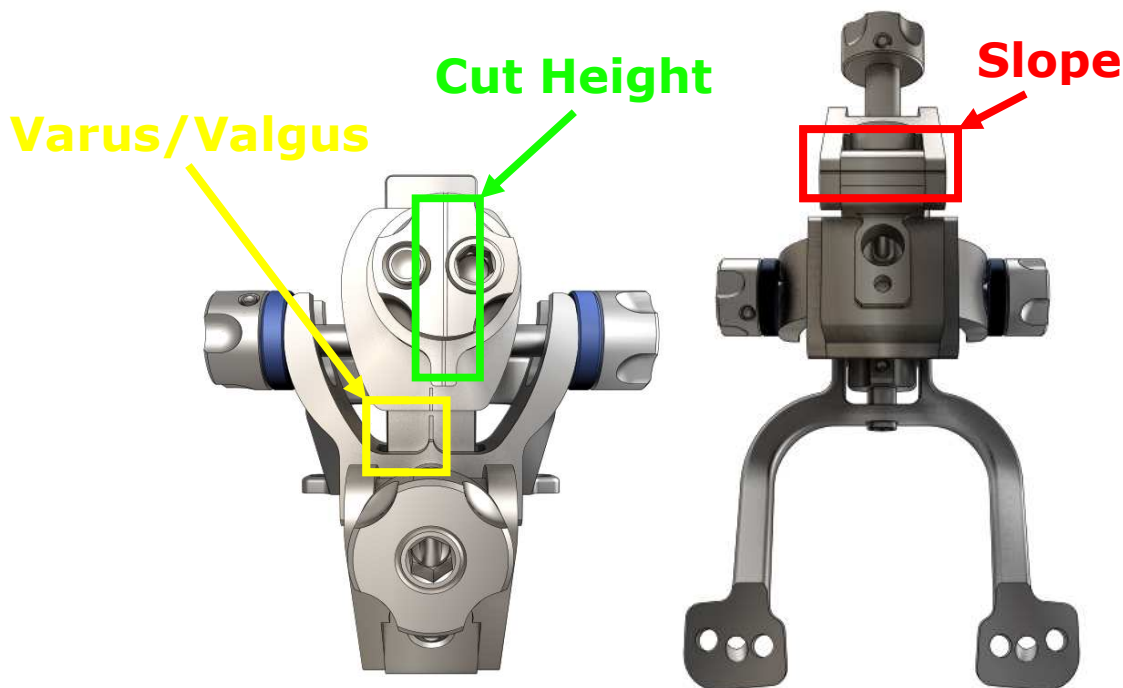


## 5. TIBIAL CUT

### 5.1 ASSEMBLING THE TIBIAL CUTTING BLOCK ON THE MICROMETRIC GUIDE

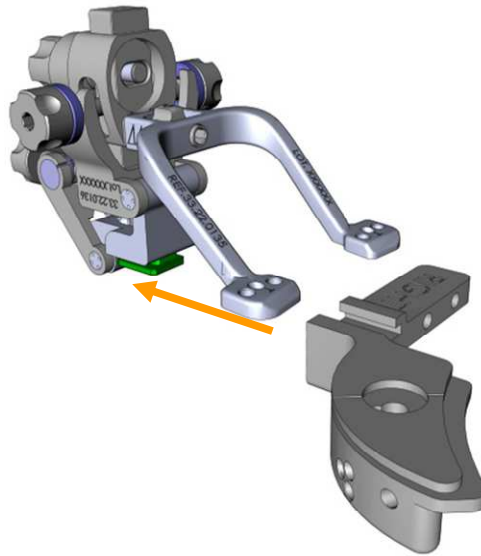
Before fixing the micrometric positioner on the tibial cutting block, set the regulation knobs at the neutral position in order to have the possibility to fine tune in both directions.

The reference notches which indicate the neutral position of the three adjustment knobs are highlighted in the figure below:



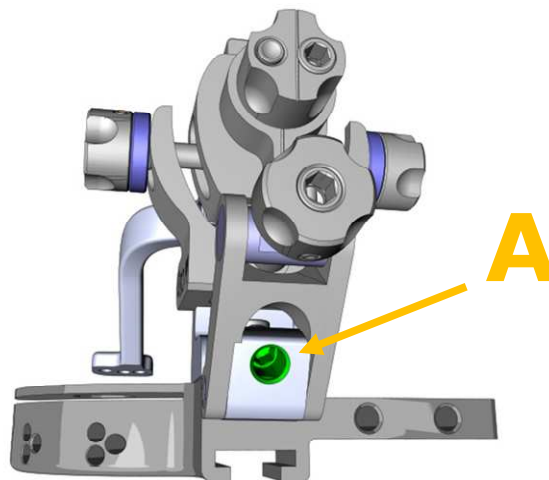


Locate the flat coupling surface on the DT - micrometric positioner (green in picture below) and slide the selected tibial cutting block on to it.



It is suggested not to introduce the tibial guide up to the end of the flat surface. In case of impingement between the cutting guide and the bone during the micrometrical fine tuning, an additional correction is then possible by sliding the cutting block on the connection plate.

Finally secure the assembly by turning the locking screw (A in the picture below):



## 5.2 POSITIONING ON THE TIBIA

Connect the G-shaped array on the selected tibial cutting guide and make sure that the latter is firmly attached to the micrometric positioner.

Under computer guidance, position the assembly on the tibia close to the target position.



To avoid impingement during the micrometric regulation, do not place the tibial cutting guide directly in contact with the bone.

Fix the DT - micrometric support to the tibial plateaus by inserting two 3.2 mm sword pin:



Green: holes for pins on the tibia

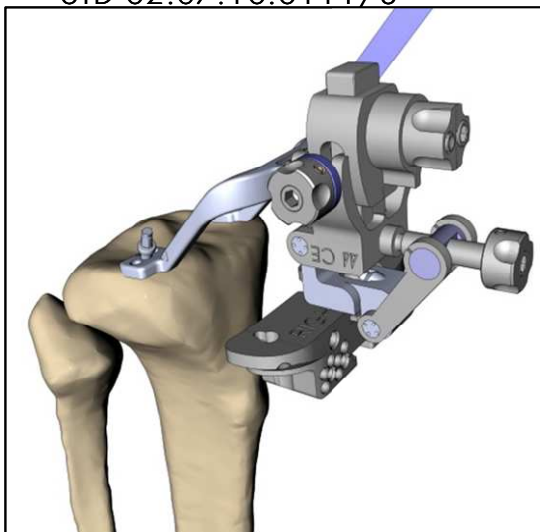


A third pin (without head) may be used to further stabilize the support.



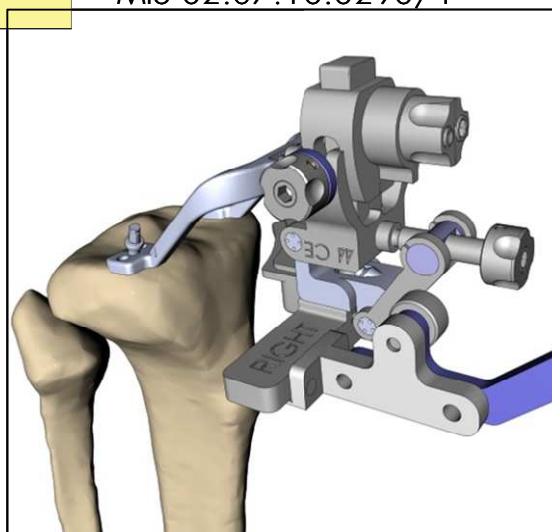
The initial position of the assembly must be close to the target position. If the initial position is not accurate, the regulation of the micrometric positioner will not be enough to reach the position.

STD 02.07.10.0111/3



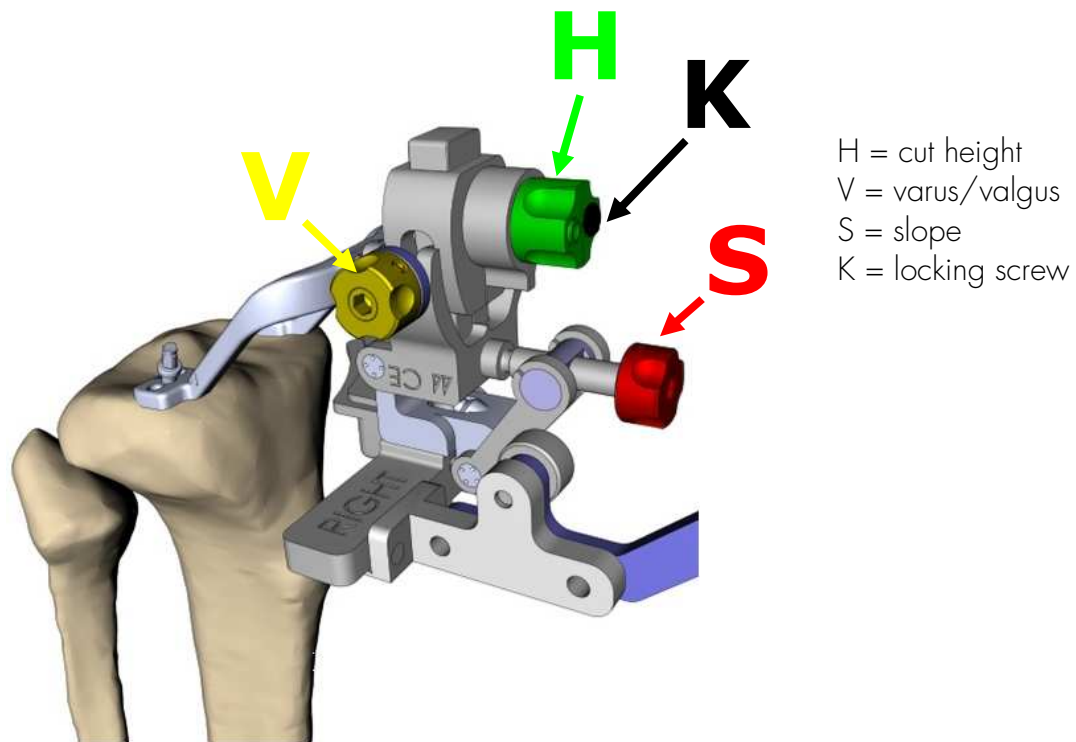
MSS

MIS 02.07.10.0290/1



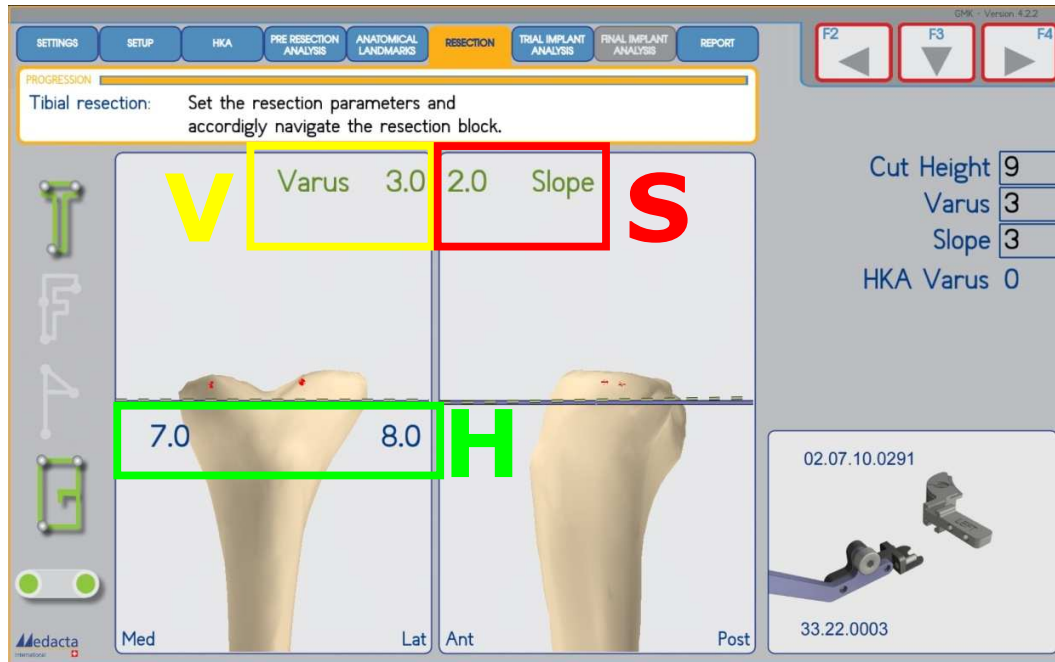
### 5.3 NAVIGATING THE TIBIAL CUT

Adjustments are performed by turning specific knobs under computer assistance, as shown in the picture below:



ADJUSTMENT KNOB	PARAMETER	RANGE
H	CUT HEIGHT	$\pm 4$ mm vs the neutral position of the knob (see par. 5.1)
V	VARUS/VALGUS	$\pm 9^\circ$ vs the neutral position of the knob (see par. 5.1)
S	SLOPE	$\pm 10^\circ$ vs the neutral position of the knob (see par. 5.1)

Check the corresponding real time values on screen whilst turning each knob:



When the cut height is deemed satisfactory, screw the corresponding screw K to fix the position.

To remove the micrometric positioner:

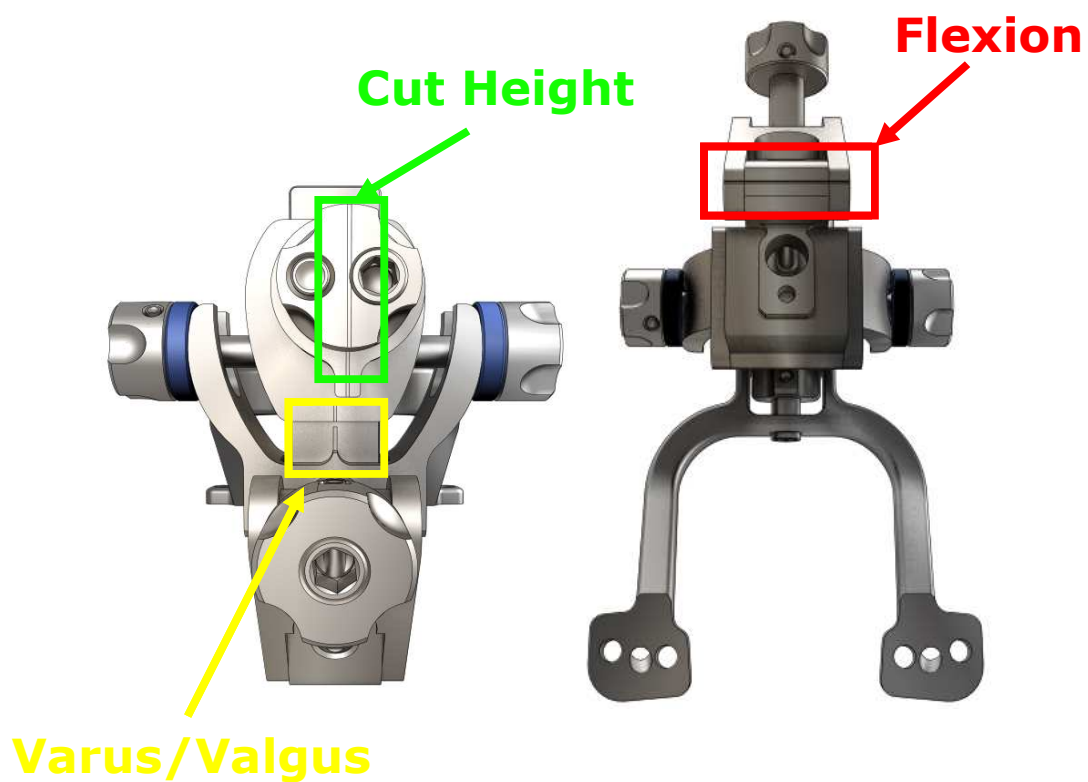
- Fix the tibial cutting guide by using 2 parallel pins
- Free the cutting block locking screw
- Remove the pins from the micrometric support
- Slide away the micrometric positioner from the tibial cutting guide.

## 6. DISTAL CUT

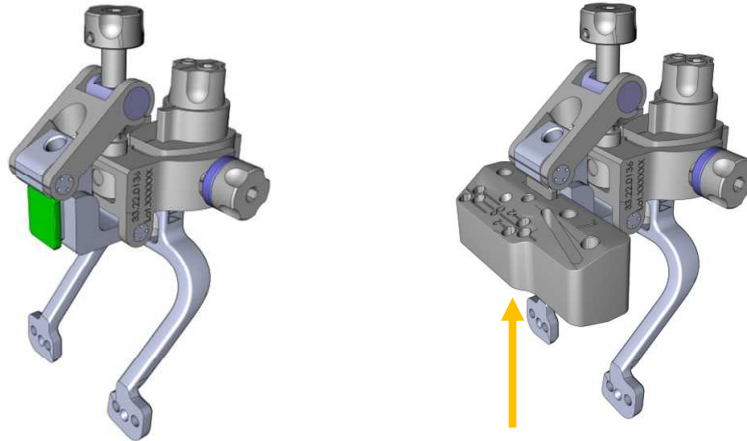
### 6.1 ASSEMBLING THE DISTAL CUTTING GUIDE ON THE MICROMETRIC GUIDE

Before fixing the micrometric positioner on the distal block, set the regulation knobs at the neutral position in order to have the possibility to fine tune in both directions.

The reference notches which indicate the neutral position of the three adjustment knobs are highlighted in the figure below:

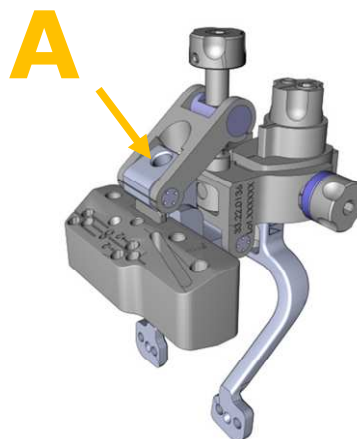


Locate the flat coupling surface on the micrometric positioner (highlighted in green in picture below) and slide the selected distal resection block on it



It is suggested not to introduce the distal block up to the end of the flat surface. In case of impingement between the cutting guide and the bone during the micrometrical fine tuning, an additional correction is then possible by sliding the cutting block on the connection plate.

Finally secure the assembly by turning the locking screw (A in the picture below).



## 6.2 POSITIONING ON THE FEMUR

Connect the G-shaped array on the selected distal cutting guide and make sure that the latter is firmly attached to the micrometric positioner.

Under computer guidance position the assembly on the femur close to the target position.

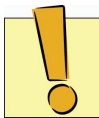


To avoid impingement during the micrometric regulation, do not place the tibial cutting guide directly in contact with the bone.

Fix the DT - micrometric support to the distal condyles by inserting two 3.2 mm sword pins:

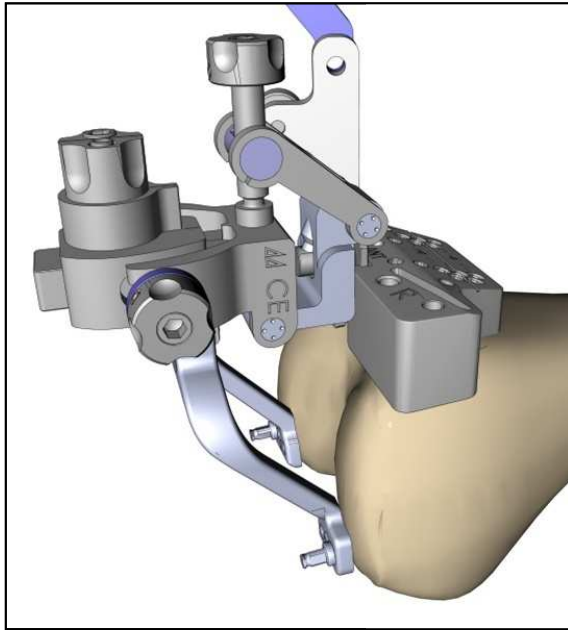


Green: positioning on the femur



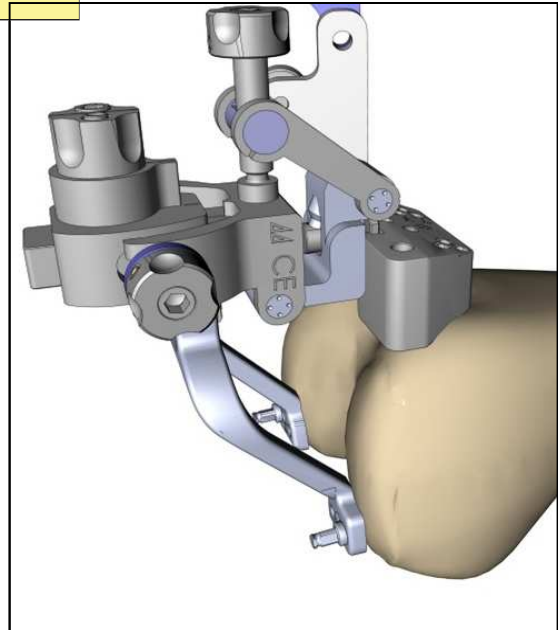
The initial position of the assembly must be close to the target position. If the initial position is not accurate, the regulation of the micrometric positioner will not be enough to reach the position.

STD 02.07.10.0127

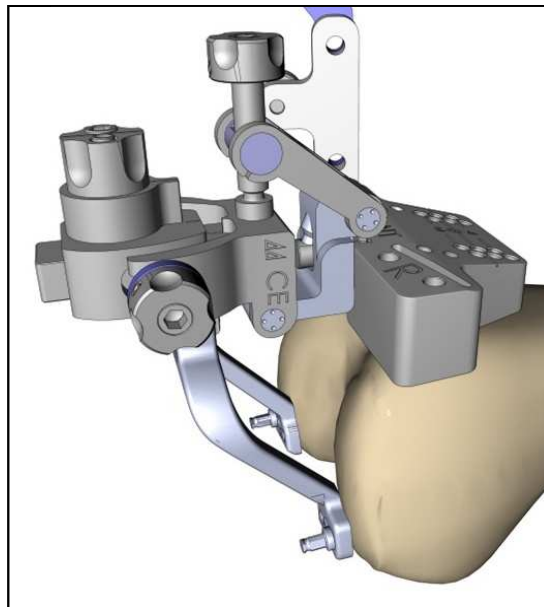


**MSS**

MIS 2.618



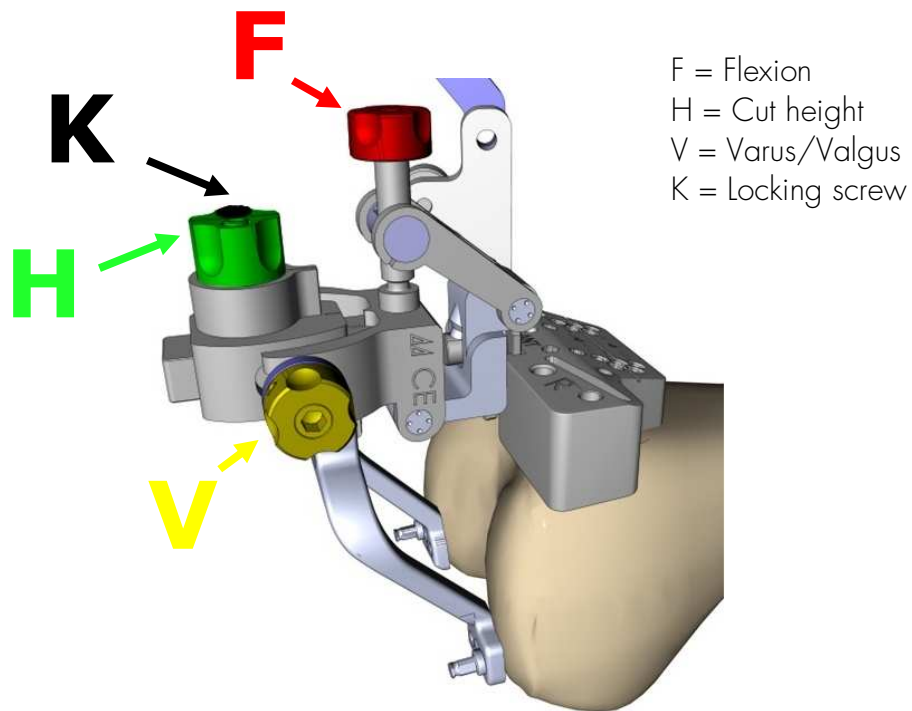
STD 2.623





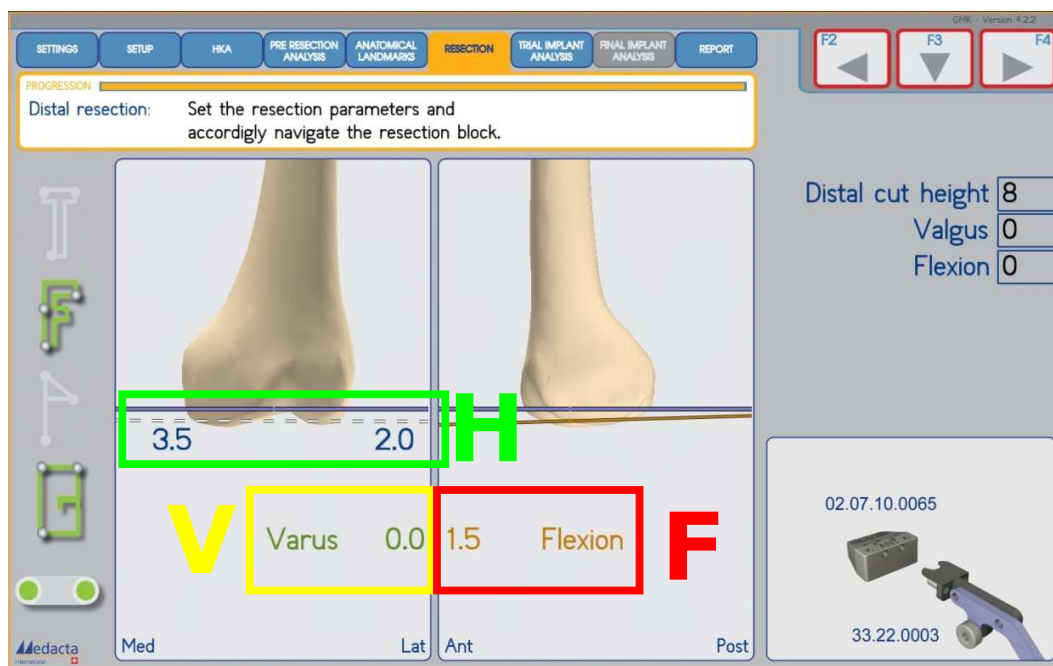
### 6.3 NAVIGATING THE DISTAL CUT

Adjustments are performed by turning specific knobs, as shown in the picture below:



ADJUSTMENT KNOB	PARAMETER	RANGE
H	CUT HEIGHT	$\pm 4$ mm vs the neutral position of the knob (see par. 6.1)
V	VARUS/VALGUS	$\pm 9^\circ$ vs the neutral position of the knob (see par. 6.1)
F	FLEXION	$\pm 10^\circ$ vs the neutral position of the knob (see par. 6.1)

Check the corresponding real time values on screen whilst turning each knob:



When the cut height is deemed satisfactory, screw the corresponding screw K to fix the position.

To remove the micrometric positioner:

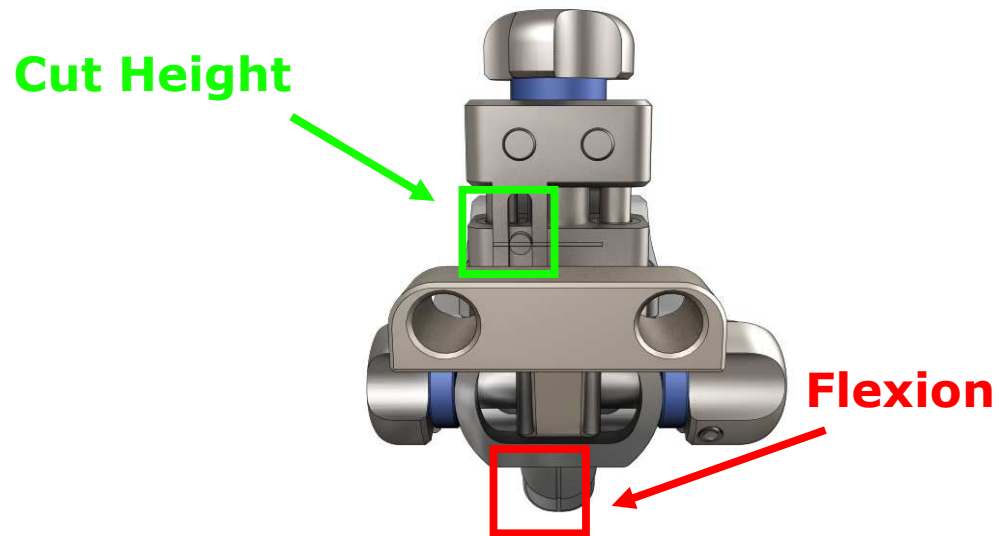
- Fix the distal cutting guide by using 2 parallel pins
- Free the cutting block locking screw
- Remove the pins from the micrometric support
- Slide away the micrometric positioner from the distal cutting guide.

## 7. ANTERIOR / POSTERIOR CUTS

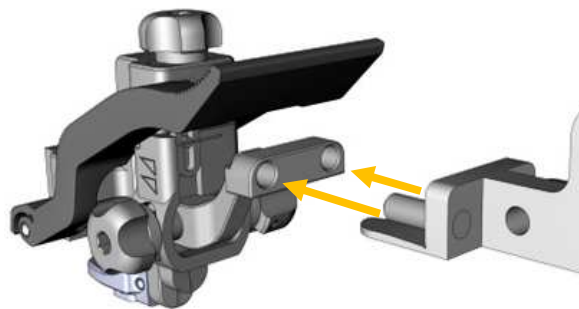
### 7.1 ASSEMBLING THE 4IN1 CUTTING GUIDE ON THE 4IN1 MICROMETRIC GUIDE

Before fixing the 4in1 micrometric positioner on the 4in1 cutting block, set the regulation knobs at the neutral position in order to have the possibility to fine tune in both directions.

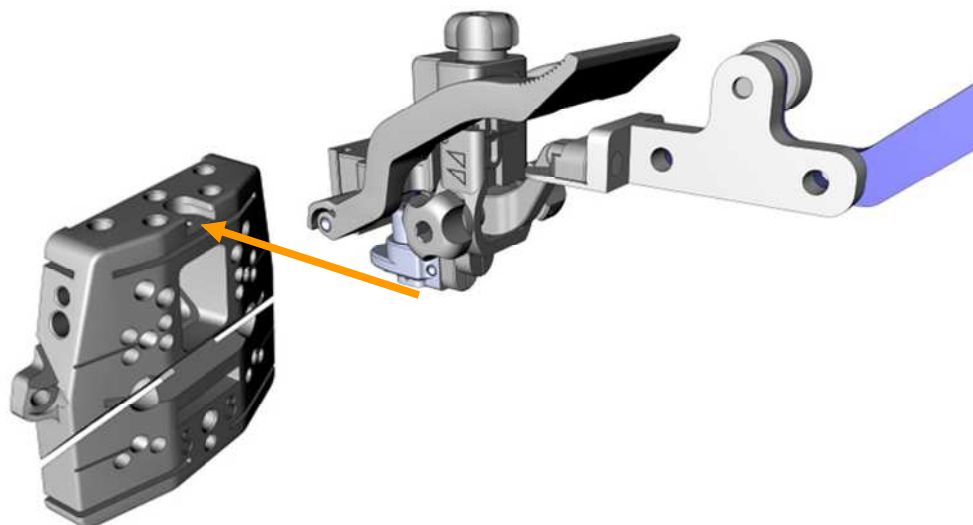
The reference notches which indicate the neutral position of the two adjustment knobs are highlighted in the figure below:



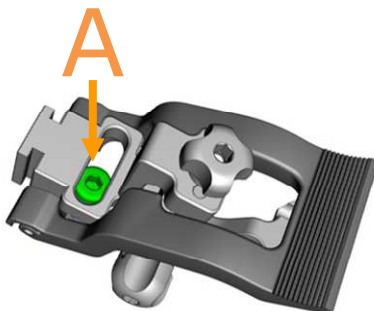
Connect the Garray in the two holes on the 4in1 micrometric positioner as shown in the picture.



Slide the connection plate located on the bottom of the 4in1 positioner into the corresponding slot on the top of the 4in1 cutting guide:



By using a screwdriver, turn the locking knob 90 degrees (A in the picture below) to fix the connection:



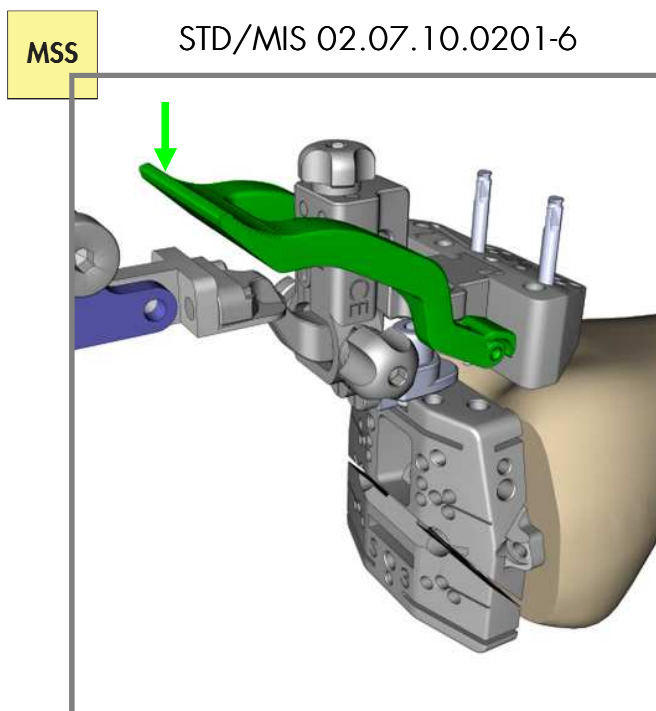
The 4in1 micrometric positioner cannot be used with the software Evolis Global v. 4.3.0 because it is not compatible with the 02.07.10.2101-6 and the 2.631-6 cutting guides (see par. 2).

## 7.2 POSITIONING ON THE DISTAL CUT



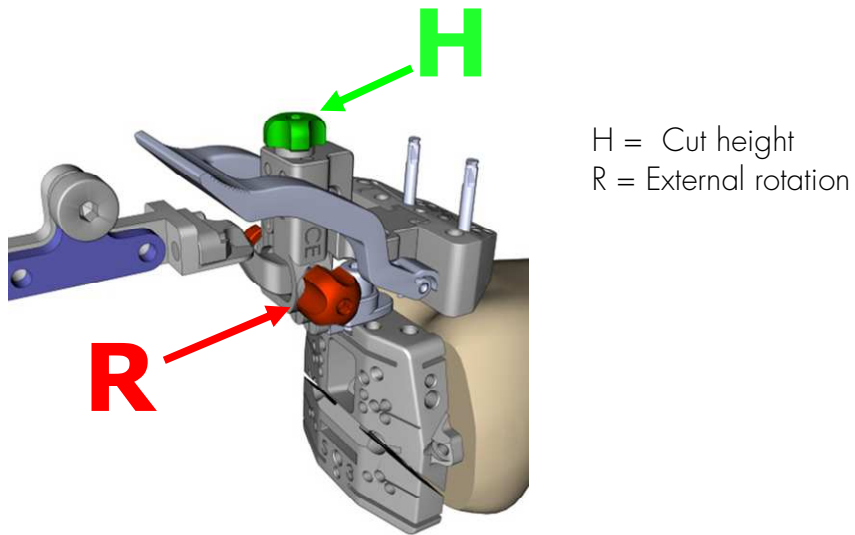
The distal cutting guide must be firmly in place in the same position it was when the distal resection was performed.

Slide the connection plate located on the 4in1 positioner into the slot on the distal guide and push the lever down to fix the connection.



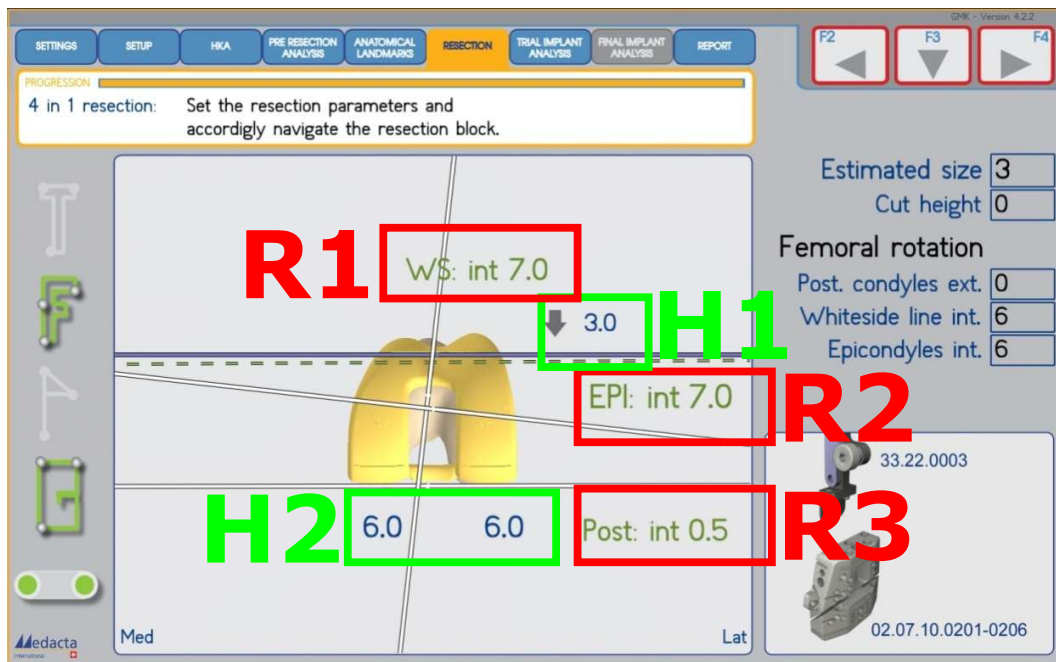
### 7.3 NAVIGATING THE ANTERIOR / POSTERIOR CUTS

Adjustments are performed by turning specific knobs under computer assistance, as shown in the picture below.



REGULATING KNOB	PARAMETER	RANGE
H	CUT HEIGHT	$\pm 4$ mm vs the neutral position of the knob (see par. 7.1)
R	ROTATION	$\pm 12^\circ$ vs the neutral position of the knob (see par. 7.1)

Check the corresponding real time values on screen while turning each knob:



Cut height references:

- Anterior cortex (*H1*)
- Posterior condyles (*H2*).

Femoral rotation references:

- Whiteside's line (*R1*)
- Transepicondylar axis (*R2*)
- Posterior condyles line (*R3*).

To remove the 4in1 micrometric positioner:

- Fix the 4in1 cutting guide by using 2 parallel pins
- Free the cutting block locking knob
- Pull up the locking lever
- Remove the 4in1 positioner sliding it away from the distal cutting guide.



An additional check may be performed:

- Move the cursor (f3) to the picture lower right corner on screen
- Press f4 to switch from the 4in1 micrometric positioner to the 4in1 cutting guide
- Assemble the G array on the 4in1 cutting guide
- Check the alignment of the 4in1 cutting guide on screen.